



CITY OF CARLISLE.

REPORT

ON THE

Sanitary Condition of the City of Carlisle,
FOR THE YEAR 1918,

BY

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CARLISLE:

CHAS. THURNAM & SONS, PRINTERS, 11 ENGLISH STREET.

Statistical Summary for the Year, 1918.

Area in Acres	...	...	...	...	4,488
Population (estimated by the usual methods, 1918)	...				52,907
Population per acre (Density)	...	...	...		11.8
Population estimated by Registrar-General for purposes of calculating Death-rates	...	...			53,717
Total Civil Population estimated by Registrar-General for purposes of calculating the Birth-rate	...				60,188
Rateable Value	...	...	...	...	£267,904
Number of Inhabitants per House (Census 1911)	...				4.4
Birth-rate per 1,000 living, calculated upon the above figure of the Registrar-General	...	...			17.1
Nett Death-rate per 1,000 living, calculated upon the figure of the Registrar-General	...	...			15.8
Standardised Death-rate per 1,000 living, based upon the same figures	...	...	...		16.1
Infant Mortality	...	...	...	...	126.8
Percentage of Uncertified Deaths	...	...			3.6
Total Deaths from Diarrhoea	...	...	...		24
Phthisis, Death-rate per 1,000 living	...	...			0.9
Infectious Diseases of all kinds notified	...	...			719
Infectious Cases Isolated at the Fever Hospital	...				97
Total Rainfall in inches	...	...	...		33.65

TO THE CHAIRMAN AND MEMBERS OF THE CARLISLE
CORPORATION HEALTH COMMITTEE

Gentlemen,

BIRTHS.

The number of births registered during the year was 1,033, of which 524 related to males and 509 to females. This figure shows a decrease of 84 over the figure for 1917.

Calculations made upon the Registrar-General's estimate of the total population of the City, viz., 60,188, give a birth-rate of 17.1 per 1,000, which shows a decrease of 1.7 per 1,000 upon the figure for the year 1917. The figure supplied by the Registrar-General is an estimate of the total population of the City for 1918, and is based upon the assumption that the ratio between the total population and the civilian population is the same in the City as in England and Wales as a whole.

Year.	Number of Births Registered.			Total.
	Males.	Females.	Per 1,000 of the population.	
1917	531	586	18.8	1117
1918	524	509	17.1	1033

The birth-rate for the whole of England and Wales during 1918 was 17.7 per 1,000. The rate for the 96 great towns, in which classification Carlisle belongs, was 17.6 per 1,000, and for the 148 smaller towns of England and Wales, 17.9 per 1,000.

On the 1st day of October, 1917, the several registration districts in the City were consolidated, and the old sub-division of the City for purposes of registration was

abolished. The births and deaths registered during the year have been allocated to the various wards of the City, but as the present population of each ward is not known it is not possible to compare the birth and death-rates for the various wards.

Table showing details of the Births in the several Wards, 1918.

QUARTER ENDING.	STANWIX AND ETTERBY.	RICKERGATE.	AGLIONBY.	GREYSTONE.	ST. NICHOLAS.	CURROCK.	DENTON HOLME.	ST. CUTHBERTS.	CALDEWEGATE.	NEWTOWN AND BELLE VUE.	TOTALS FOR CITY.
March 31	14	19	32	27	29	25	30	31	33	17	257
June 30	8	21	19	29	37	23	38	30	34	28	267
September 30 ..	14	21	28	33	34	24	35	36	27	17	269
December 31	10	24	17	29	37	24	33	22	34	10	240
Totals... ..	46	85	96	118	137	96	136	119	128	72	1033

ILLEGITIMATE BIRTHS.

The number of illegitimate births registered during 1918 was 83, making a figure equal to 80.3 per 1,000 of the total births.

The distribution of the illegitimate births among the several wards was as follows:—

	Stanwix and Etterby	Rickergate	Aglionby	Greystone	St. Nicholas	Currock	Denton Holme	S. Cuthberts	Caldewgate	Newtown & Belle Vue	Totals for City
Males	1	7	2	5	6	2	...	7	8	...	33
Females	1	6	5	3	13	3	4	4	3	3	50
Total	2	13	7	8	19	5	4	11	11	3	83

The number of illegitimate births registered shows a decrease of 8 upon the figure for 1917, and an increase of 2 over the figure for 1916.

Upon investigation I find that in 7 instances, or 8.4 per cent. of the total illegitimate births for the year, the mother was not a resident of the City.

DEATHS.

The total number of deaths registered during 1918 was 921, as compared with 826 in 1917. 49 deaths occurred of persons belonging to the City in institutions and other places outside, while the deaths of 120 persons not belonging to the City occurred in public institutions and other places within the City.

Excluding the 120 deaths of persons belonging to outside districts, and substituting the 49 deaths of Carlisle residents occurring in other districts, a nett figure of 850 remains. This gives a nett death-rate of 15.8 per 1,000, or a standardised death-rate of 16.1 per 1,000 of the civil population at all ages, based upon the estimated civil population supplied by the Registrar-General for the purpose, viz., 53,717.

Of this number 107 deaths were due to influenza, an increase of 85 on the previous year, and equal to a death-rate of 2.0 per 1,000 of the population at all ages.

Birth-rate, Death-rate, and Analysis of Mortality during the Year 1918.
(Populations estimated to the middle of 1918 have been used for the purposes of this Table.)

	BIRTH-RATE PER 1,000 TOTAL POPULATION.	ANNUAL DEATH-RATE PER 1,000 CIVILIAN POPULATION.*									RATE PER 1,000 BIRTHS.		PERCENTAGE OF TOTAL DEATHS.*			
		All Causes.	Enteric Fever.	Smallpox.	Measles.	Scarlet Fever	Whooping Cough	Diphtheria.	Violence.	Diarrhoea and Enteritis (under 2 years).	Total Deaths under One Year.	Deaths in Public Institutions.	Certified Causes.	Inquest Cases.	Uncertified Causes of Death.	
England and Wales	17.7	17.6	0.03	0.00	0.28	0.03	0.29	0.14	0.49	10.99	97	24.3	93.3	5.4	1.3	
96 Great Towns, including London (Census Populations exceeding 50,000)	17.6	18.2	0.02	0.00	0.36	0.04	0.34	0.15	0.49	14.46	106	28.4	93.4	5.8	0.8	
148 Smaller Towns (Census Populations 20,000—50,000)	17.9	16.1	0.03	0.00	0.25	0.02	0.25	0.14	0.38	9.73	94	15.4	94.5	3.9	1.6	
London	16.1	18.9	0.02	0.00	0.42	0.03	0.43	0.17	0.56	15.67	107	45.0	92.5	7.3	0.2	
Carlisle	17.1	15.8	0.00	0.00	0.11	0.00	0.63	0.09	0.37	18.39	126.8	24.2	88.9	4.5	3.6	

* Non-civilians are included in these figures for England and Wales but not for other areas.
Population estimated by the Registrar General—
For Birth-rate 60,188 } 1918
And for Civilian Death Rate 53,717 }

Table showing details of the Deaths in the
several Wards, 1918.

Quarter Ending	Stanwix and Etterby	Rickergate	Aglionby	Greystone	St. Nicholas	Currock	Denton Holme	S. Cuthberts	Caldewgate	Newtown & Belle Vue	Totals for City
March 31	14	21	25	26	24	20	17	21	33	48	249
June 30	12	15	19	29	19	14	21	17	11	40	197
September 30	8	18	19	21	17	6	20	14	14	41	178
December 31	19	34	27	30	23	14	29	28	26	67	297
Totals	53	88	90	106	83	54	87	80	84	196	921

Table showing the number of Deaths at all
Ages and at several Age periods.

	All Ages.	Under 1 Year.	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and up- wards.
No. of Deaths at all ages at several age periods	921	137	67	46	68	366	237

The following is a list of the deaths of persons not belonging to the district occurring in public institutions and other places within the City:—

Cumberland Infirmary	...	...	...	56
Private Nursing Homes	...	...	...	15
Fever Hospital	...	...	...	2
Fusehill War Hospital	...	...	...	32
Chadwick Hospital	...	...	...	1
Private Houses	...	...	...	14
				<hr/> 120 <hr/>

The following table shows the Vital Statistics for the whole City during 1918 and previous years.

YEAR.	Population estimated to Middle of each Year	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS.		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncorrected Number.	Nett.		Number.	Rate.	of Non-residents registered in the District.	of Residents not registered in the District.	Under 1 Year of age.		AT ALL AGES.	
			Number.	Rate.					Number.	Rate per 1,000 Nett Births.	Number.	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1911	46,420	1109	1106	23.8	776	16.7	60	17	161	145	733	15.7
1912	52,225	1149	1149	20.2	823	15.7	63	23	120	104.4	783	14.0
1913	52,497	1164	1164	22.1	821	15.6	76	24	148	127.1	769	14.6
1914	52,530	1209	1209	23.0	848	16.1	69	22	148	122.4	801	15.2
1915 {	52,625	1192	1192	22.6	994	18.8	72	31	172	144.3	953	18.1
+1916 {	+50,036											
	49,721	1103	1103	20.3	850	17.0	93	24	112	101.3	781	15.7
	54,097											
+1917 {	59,151	1117	1120	18.9	826	15.5	101	46	119	106.5	771	14.5
	53,064											
+1918 {	60,188	1033	1037	17.2	921	17.1	120	49	131	126.8	850	15.8
	53,717											

† Registrar-General's estimates of population.

The following public and other Institutions are within the City:—

The Union Workhouse and its Infirmary.
The Cumberland Infirmary.
Carlisle Non-Provident Dispensary.
The Crozier Lodge Isolation Hospital.
Strathclyde House (Home for Incurables).
St. Joseph's Home (aged and infirm persons).
Chadwick Memorial (Industrial School).
Corporation Dispensary and School Clinic.

The following table sets out the Cause and the Ages at Death of 850 persons belonging to the City.

CAUSES OF DEATH.				NETT DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING WITHIN OR WITHOUT THE DISTRICT.							TOTAL DEATHS WHETHER OF "RESIDENTS" OR "NON-RESI- DENTS" IN INSTITUTIONS IN THE DISTRICT.			
				All Ages.	Under 1 year.	1 and under 2.	2 and under 5.	5 and under 15.	15 and under 25.	25 and under 45.	45 and under 65.	65 and up- wards		
1				2	3	4	5	6	7	8	9	10	11	
All Causes	{ Certified	{ Uncertified .. ..	...	819	124	34	27	39	51	126	190	228	222
			...	31	7	..	..	...	1	6	11	6	1
Enteric Fever	...	...	...	...	...	...	...	...	...	...	...	...	1
Smallpox	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	...	...	...	...	6	2	...	4	...	...	...	...	...
Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping Cough	...	...	...	...	34	20	8	4	1	...	...	...	...
Diphtheria and Croup	...	...	...	...	5	...	...	1	3	...	...	...	3
Influenza	...	...	...	...	107	2	5	6	7	20	39	16	12
Erysipelas	...	...	...	...	...	...	...	...	...	...	...	...	1
Phthisis (Pulmonary Tuberculosis)	...	...	...	...	48	...	...	...	1	6	28	12	1
Tuberculous Meningitis	...	...	...	...	10	1	...	...	7	2	...	...	...
Other Tuberculous Diseases	...	...	...	...	9	2	...	...	...	1	6	...	...
Cancer, Malignant Disease	...	...	...	...	66	...	...	...	1	1	6	34	24
Rheumatic Fever	...	...	...	...	7	...	...	...	2	1	1	3	...
Meningitis	...	...	...	...	5	2	1	...	1	...	1	...	...
Organic Heart Disease	...	...	...	...	94	...	...	...	...	3	12	31	48
Bronchitis	...	...	...	...	50	11	3	3	1	...	2	11	19
Pneumonia (all forms)	...	...	...	...	70	15	5	8	7	8	9	11	7
Other Diseases of Respiratory Organs	...	...	...	...	13	1	1	...	...	...	2	4	5
Diarrhoea and Enteritis	...	...	...	...	23	15	4	...	...	...	1	2	1
Appendicitis and Typhlitis	...	...	...	...	...	...	...	...	...	...	...	...	...
Cirrhosis of Liver	...	...	...	...	2	...	...	...	...	...	...	1	1
Alcoholism	...	...	...	...	...	...	...	...	...	...	...	...	...
Nephritis and Bright's Disease	...	...	...	...	31	...	...	1	3	2	6	9	10
Puerperal Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Accidents and Diseases of Preg- nancy and Parturition	...	...	...	...	5	...	...	...	...	1	4	...	...
Congenital Debility & Malformation, including Premature Birth	...	...	...	...	41	39	1	...	...	...	...	1	...
Violent Deaths, excluding Suicide	...	...	...	...	20	2	3	...	3	3	3	4	2
Suicide	...	...	...	...	3	...	...	...	...	...	...	3	...
Other Defined Diseases	...	...	...	...	195	19	3	...	2	2	11	56	102
Diseases ill-defined or unknown	...	...	...	...	6	...	...	...	...	...	1	3	2
Totals				...	850	131	34	27	39	52	132	201	234	223
Sub- entries included above figures	Cerebro-spinal Meningitis	1
	Poliomyelitis
	Typhus Fever
	Lobar Pneumonia	...	3	1	2	...	2
	Pneumonia not defined	...	50	11	3	6	4	7	9	7	3	8

Birth-rate, Death-rate, and Infantile Mortality in Carlisle since 1891.

Year.	No. of Births.	Birth- rate.	No. of Deaths.	Gross Death- rate.	Infantile Mor- tality.	Average Five Years.		
						Birth- rate.	Death- rate.	Infant Mortality.
1891	1207	30.8	789	20.1	137	31.8	20.1	142.6
1892	1213	30.5	805	20.2	123			
1893	1389	34.5	868	21.6	178			
1894	1315	32.0	780	19.2	133			
1895	1311	31.4	794	19.4	142			
1896	1246	29.6	753	18.2	137	29.9	19.5	146.6
1897	1324	30.8	811	19.4	134			
1898	1311	30.0	935	22.2	183			
1899	1300	29.4	818	19.2	145			
1900	1354	30.1	807	18.8	134			
1901	1246	27.3	810	17.8	129	26.7	17.9	131.0
1902	1245	27.0	856	18.5	117			
1903	1322	28.4	813	17.4	113			
1904	1278	26.7	933	19.7	152			
1905	1168	24.3	783	16.3	139			
1906	1227	25.3	811	16.7	132	23.6	15.1	127.5
1907	1178	23.8	848	17.1	143			
1908	1223	24.4	713	14.2	129			
1909	1149	22.6	735	14.5	123.6			
1910	1145	22.2	683	13.2	110.0			
1911	1109	23.8	776	16.7	145.0	23.2	17.1	128.2
1912	1142	24.6	813	17.5	102.4			
1913	1164	22.1	821	15.6	127.1			
1914	1209	23.0	848	16.1	122.4			
1915	1192	22.6	1027	19.5	144.3			
1916	1103	20.3	850	17.0	101.5			
1917	1117	18.8	826	15.5	106.5			
1918	1033	17.1	921	17.1	126.8			

The following table shows the diseases causing the largest number of Deaths during 1918, and a comparison with those of 1917.

DISEASE.	1917.	1918.	Increase or Decrease
Pulmonary Tuberculosis & Phthisis ...	71	48	—23
Pneumonia	51	70	+ 19
Other Diseases of Respiratory System ...	46	63	+ 17
Measles	12	6	— 6
Influenza	22	107	+ 85
Whooping Cough	2	34	+ 32
Diphtheria, Membranous Croup ...	12	5	— 7
Disease of Heart and Blood Vessels ...	171	151	—20
Rheumatic Fever, Chronic Rheumatism, Rheumatoid Arthritis	3	10	+ 7
Cancer and Malignant Disease ...	73	66	— 7
Diseases of Digestive System other than Diarrhoea and Enteritis	30	30	...
Diseases of Urinary System	26	38	+ 12
Diseases of Nervous System	37	32	— 5
Prematurity and Injury at Birth ...	23	23	...
Accidents due to Negligence ..	28	20	— 8
Diarrhoea and Enteritis	33	23	—10

+ Shows an increase in the number of deaths.

— Shows a decrease in the number of deaths.

CAUSE OF DEATH.	AGES.											TOTALS.	
	0 to 1	1 to 2	2 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85		85 and upwards
II.—LOCAL DISEASES— <i>continued.</i>													
Other Diseases of Intestine	1	...	...	1	...	...	...	...	...	2	...	...	4
Peritonitis (not Puerperal)	...	...	...	1	...	...	...	...	...	...	...	...	2
Cirrhosis of Liver	...	...	...	...	...	...	...	1	...	...	1	...	2
<i>Lymphatic Diseases.</i>													
Lymph System, other Diseases	...	...	...	...	...	...	...	...	1	...	...	...	1
Thyroid, Body Disease	...	...	...	...	1	...	...	1	...	...	...	...	2
<i>Diseases of Urinary System.</i>													
Nephritis (Acute), Uræmia	...	...	...	3	1	1	3	1	6	3	2	1	21
Chronic Bright's Disease, Albuminuria	...	...	1	...	1	1	1	1	1	3	1	...	10
Bladder and Prostate Disease	...	...	...	...	...	...	...	...	1	1	3	...	5
Urinary System, other Diseases	...	...	...	...	...	...	...	1	1	...	...	...	2
<i>Diseases of Generative System.</i>													
Other Diseases of Uterus and Vagina	1	...	...	...	1	...	...	...	...	...	...	...	1
<i>Accidents of Childbirth.</i>													
Other Accidents of Pregnancy and Childbirth	...	...	...	...	1	2	2	...	...	...	...	...	5
III.—DEATHS FROM VIOLENCE.													
<i>Accident or Negligence.</i>													
Fractures and Contusions	...	...	...	...	...	...	...	...	...	1	...	...	1
Burn, Scald	...	...	...	1	...	...	...	...	...	...	...	...	2
Poison	...	1	...	...	...	...	...	...	1	...	...	...	2
Suffocation	2	...	...	...	...	...	...	...	...	...	...	...	2
Otherwise	...	1	...	2	3	2	1	3	...	1	...	...	13
<i>Suicide.</i>													
Cut, Stab	...	...	...	...	...	...	...	1	...	...	...	...	1
Hanging	...	...	...	...	...	...	...	2	...	...	...	...	2
IV.—DEATHS FROM ILLEDDEFINED AND NOT SPECIFIED CAUSES.													
Old Age	...	...	...	...	...	...	...	...	...	8	33	5	46
Dropsy, Ascites, Anasarca	...	...	...	...	...	...	...	...	1	...	...	...	1
Debility, Atrophy, Inanition, Marasmus	10	1	...	...	...	...	...	...	1	...	...	...	12
Tumour	...	...	...	...	...	...	...	1	...	...	...	...	1
Causes not specified or Ill-defined	...	...	...	...	1	...	...	1	2	2	...	...	6
CRUSES NOT SPECIFIED OR ILL-DEFINED													

INFANT MORTALITY.

The total number of deaths of infants under one year during 1918 was 137. The total number of deaths of infants of residents was 131; this figure gives an infant mortality rate of 126.8 per 1,000, as against 119 or 106.5 per 1,000 in 1916.

The increase in the infant mortality rate is mainly due to the increase in the number of deaths from whooping cough. During 1918, 20 deaths, equivalent to an infant mortality rate of 19.4 per 1,000, were registered as due to this cause, compared with 2 in 1917.

27 deaths of illegitimate children occurred, which is equal to an infant mortality rate of 325.3, the rate for legitimate infants being 109.5.

The infant mortality rate for the whole of England and Wales during 1918 was 97 per 1,000 born; for the 96 great towns (of which Carlisle is one), 106 per 1,000; for the 148 smaller towns, 94 per 1,000.

Distribution of Deaths of Infants under one year in the several Wards.

	Stanwix & Etterby	Rickergate	Aglionby	Greystone	St. Nicholas	Currock	Denton Holme	St. Cuthberts	Caldewgate	Newtown & Belle Vue	Whole City
Legitimate ..	5	9	8	8	8	8	13	15	16	14	104
Illegitimate ...	—	1	3	2	5	—	4	5	4	3	27
Total ...	5	10	11	10	13	8	17	20	20	17	131

The following table shows comparative rates for the past 10 years :—

			Legitimate Infant Mortality Rate.	Illegitimate Infant Mortality Rate.
1909	...	...	116.8	204.5
1910	...	...	106.4	163.6
1911	...	...	142.0	200.0
1912	...	...	103.0	123.0
1913	...	...	119.0	280.0
1914	...	...	108.5	328.9
1915	...	...	133.0	338.4
1916	...	...	95.8	172.8
1917	...	...	103.3	142.8
1918	...	...	109.5	325.3

A five-yearly average of the infantile mortality rates shows that a considerable decrease has taken place during the past 20 years, as will be seen from the following table :—

Period.	Infantile Mortality Rate.		
Average 5 years, 1897-1901	145
„ 1902-1906	131.60
„ 1907-1911	130.12
„ 1912-1916	119.54

The number of deaths of male infants in 1918 was 71, against 60 females, the sex mortality under one year of age per 1,000 for the past 10 years being as follows :—

			Males.	Females.	Both Sexes.
1909	...	...	142.3	103.7	123.6
1910	...	...	123.9	93.5	110.0
1911	...	...	165.2	124.5	145.0

			Males.	Females.	Both Sexes.
1912	...	...	122.5	84.2	102.4
1913	...	...	147.6	107.5	127.1
1914	...	...	111.2	134.4	122.4
1915	...	...	150.6	137.7	144.3
1916	...	...	115.3	105.9	101.5
1917	...	...	118.6	95.5	106.5
1918	...	...	135.4	117.8	126.8.

25 deaths occurred during the first week of life, which is equal to 19.1 per cent. of the total under one year of age. In the previous year the percentage was higher, viz., 24.3. Premature birth was responsible for 17.6 per cent. of the deaths under one year of age. The principal causes of deaths under one year during the past ten years are shown in the following table:—

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918
Diarrhoea and Enteritis ...	24	14	42	11	22	25	19	19	27	15
Premature Birth ...	25	33	20	18	33	24	36	30	23	23
Atrophy, Debility and Marasmus ...	20	15	14	18	15	19	15	8	8	10
Bronchitis & Pneumonia ...	15	17	29	25	21	22	24	16	12	26
Whooping Cough ..	5	5	10	7	4	7	12	...	2	20

Net Deaths from stated causes at various ages
under One Year of Age.

CAUSE OF DEATH.				Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 4 Weeks.	4 Weeks & under 3 Months.	3 Months and under 6 Months.	6 Months and under 9 Months.	9 Months and under 12 Months.	Total Deaths under One Year.
All Causes.	Certified ...	..	..	23	3	9	2	37	16	26	30	15	124
	Uncertified ...	..	..	2	1	..	..	3	2	1	1	..	7
{	Smallpox ...	..	..	..	..	..	..	..	..	..	..	..	..
	Chickenpox ...	..	..	..	..	..	..	..	..	..	..	..	..
{	Measles ...	..	..	..	..	..	..	..	..	1	..	1	2
	Scarlet Fever ...	..	..	..	..	..	..	..	..	..	..	..	..
{	Whooping Cough ...	..	..	..	..	..	..	..	1	3	11	5	20
	Diphtheria and Croup ..	..	..	..	..	..	..	..	..	..	..	..	..
{	Erysipelas ...	..	..	..	..	..	..	..	..	..	..	..	..
	Tuberculous Meningitis ...	..	..	..	..	..	..	..	..	1	..	..	1
{	Abdominal Tuberculosis ..	..	..	..	..	..	..	..	..	1	1	..	2
	Other Tuberculous Diseases ..	..	..	..	..	..	..	..	..	..	..	..	..
{	Meningitis (<i>not Tuberculous</i>) ..	..	..	..	..	..	..	..	1	..	..	1	2
	Convulsions ...	..	..	3	1	..	..	4	3	3	..	..	10
{	Laryngitis ..	..	..	..	..	..	..	..	..	..	..	..	..
	Bronchitis ...	..	..	..	..	1	..	1	3	1	4	2	11
{	Pneumonia (all forms) ...	..	..	..	..	..	..	..	3	3	6	3	15
	Diarrhoea ..	..	..	..	..	..	..	..	..	2	2	..	4
{	Enteritis ..	..	..	..	..	1	1	2	4	3	1	1	11
	Gastritis ...	..	..	..	..	1	..	1	..	..	..	..	1
{	Syphilis ...	..	..	..	..	..	..	..	1	2	..	1	4
	Rickets ...	..	..	..	..	..	..	..	..	..	..	..	..
{	Suffocation, overlying ...	..	..	..	..	..	..	..	..	1	1	..	2
	Injury at Birth ...	..	..	..	..	..	..	..	..	..	..	..	..
{	Atelectasis ...	..	..	3	..	..	..	3	..	..	..	..	3
	Congenital Malformations ..	..	..	..	..	..	..	..	1	..	1	..	2
{	Premature Birth ..	..	..	17	2	3	..	22	..	1	..	..	23
	Atrophy, Debility & Marasmus...	..	..	1	1	3	..	5	1	4	1	..	11
{	Other Causes ...	..	..	1	..	..	1	2	..	1	3	1	7
	Totals ...	..	..	25	4	9	2	40	18	27	31	15	131
Nett Births in the year.				{ Legitimate, 957 Illegitimate, 76				Nett Deaths in the year of				{ Legitimate Infants, 104. Illegitimate „ 27.	

NOTIFICATION OF BIRTHS ACT, 1907.

Number of live births notified by official letter card ...	...	1005
Number of still births notified by official letter card ...	...	36
Number of births notified otherwise than by official letter card (all of which were live births) ..	...	18
Number of births in which the first notification was the Sub-Registrar's return ... ..	...	17
Total		1076.

Total number of primary visits made by the Health Visitor to houses ... ..	...	1103
Total number of revisits ... ..	...	8801

PARTICULARS OF ENQUIRIES WITH RESPECT TO FEEDING.

Number of children fed entirely on the breast ...	...	807
„ „ „ „ by means of hygienic (boat-shaped) bottle ...	...	86
„ „ „ „ by means of long-tubed bottle ...	...	12
„ „ „ „ partly breast and partly bottle ...	...	90
„ „ „ „ by other means—Spoon (all premature) ... ..	...	9
„ „ „ „ dying soon after birth and not fed ...	...	14
No information obtained ... ..	...	22

PARTICULARS SHOWING THE RELATION OF DEATHS TO FEEDING.

Number of deaths of breast-fed infants	40 or 4.9%	of breast-fed infants
„ „ bottle „ „	51 or 52%	of bottle-fed infants
„ „ infants fed by spoon	5	
Number of deaths of infants partly fed on breast and partly bottle ...	11	
No information	10	
Dying soon after birth and not fed ...	14	

18 primary visits and 75 revisits were made to children who were being nursed and maintained apart from their parents.

MATERNITY AND CHILD WELFARE.

The Corporation staff of full-time Health Visitors, which now comprises three females, are engaged upon duties of a comprehensive character, and I am of opinion that this part of the complex problem relating to the question of the saving of infant life is of the utmost importance, for it is in the home of the child where practically all matters affecting its health have their origin and being. Therefore visits paid by intelligent Health Visitors to a home where a child is expected, or where the baby has arrived, may be regarded as second only to the important question of the house itself in which the baby spends the greatest portion of that part of its life when it is most influenced by its home environment.

I am pleased to be able to report that progress is being made towards the provision of a Maternity Hospital and Child Welfare Centre. Two houses, Nos. 3 and 4 George Street, adjoining the School Clinic and Tuberculosis Dispensary, are now vacant, and the necessary alterations can be proceeded with as soon as the approval of the Local Government Board to the scheme is obtained.

It is proposed to provide accommodation for 7 patients on the first floor in three wards, two of which will each contain 3 beds and cots, and a small ward with a single bed for cases needing special observation. On the same floor a room at the back will be altered so as to be capable of serving as the accouchement room, and also as an operating theatre when necessary; the dual arrangement for the use of this room is necessitated by the limited accommodation available. On the ground floor there will be a waiting room, which may also be used as a lecture room. Immediately to the rear of this room will be the Medical Officer's consulting room. The present entrance to No. 4 George Street will be built up and the lobby converted into a weighing room for infants. On the upper

floors there will be accommodation for the nursing and domestic staff.

VOLUNTARY AGENCY.

There is in existence a voluntary agency, organised and supervised by a committee of ladies, which has three small centres at work in different parts of the town. Voluntary helpers attend at these centres, and various educational and health talks are given each Monday afternoon. The Corporation Health Visitors regularly visit these centres and advise mothers upon a number of important health and infant welfare matters

During the past year the Health Visitors have paid 25 visits to caravans in connection with Infant Welfare Work.

INFECTIVE DISEASES.

(Zymotic Diseases.)

The total number of cases of infectious disease (excluding Tuberculosis) notified during the year was 582, the incidence being as follows:—

Measles	...	...	...	...	420
Diphtheria (including Membranous Croup)	...				62
Erysipelas	...	...	...	...	38
Scarlet Fever	...	...	...	...	38
Ophthalmia Neonatorum	...		...	...	21
Cerebro-Spinal Fever	...		...	...	1
Enteric Fever	...	...	...	...	1
Typhus Fever	...	...	...	...	1
					<hr/> 582 <hr/>

The number of deaths registered from this class of disease was 74, which, calculated upon the Registrar-

General's figure (53,717), gives a death-rate of 1.3 per 1,000.

The causes of death were registered as follows :—

Diarrhœa	...	...	...	...	24
Diphtheria	...	...	...	...	6
Measles	...	...	...	...	6
Scarlet Fever	...	...	...	...	—
Whooping Cough	...	...	...	...	35
Cerebro-spinal Fever	...	...	...	...	1
Enteric Fever	...	...	...	...	1
Erysipelas	...	...	...	...	1
					—
					74
					—

The number of deaths from zymotic disease in 1916 and 1917 was 64 and 68 respectively.

ISOLATION HOSPITALS, &c.

There are two hospitals for the isolation of cases of infectious disease in the City, viz. :—

Crozier Lodge, Newtown, Carlisle—Total available beds 50.

Smallpox Hospital, Belle Vue, Carlisle—Total available beds 12.

5 types of infectious disease can be treated concurrently.

several age groups notified in the various Wards in the City.

Notifiable Disease.	Number of Cases Notified.							Total Cases notified in each Ward.									Total Cases Removed to Hospital.		
	At all Ages	At Ages—Years.						Stanwix and Enderby.	Rickergate.	Aglionby.	Greystone.	St. Nicholas.	Currock.	Denton Holme.	St. Cuthbert's.	Caldegate.		Newtown and Belle Vue.	
		Under 1	1—5	5—15	15—25	25—45	45—65												65 and up-wards
Measles	420	31	196	179	9	5	...	...	48	22	30	45	45	35	67	44	64	20	5
Diphtheria (including Membranous Group) ...	62	...	14	33	11	4	...	...	3	3	4	11	7	16	5	7	1	5	51
Erysipelas	38	...	2	1	9	9	13	4	...	2	1	2	6	1	2	10	7	7	4
Scarlet Fever	38	...	9	18	9	2	...	...	2	4	1	5	3	4	2	2	4	11	30
Typhus Fever	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Enteric Fever	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	..	...
Cerebro-Spinal Fever ...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Ophthalmia Neonatorum ...	21	21	...	..	...	...	...	...	...	2	1	1	1	1	4	3	3	3	..
Pulmonary Tuberculosis ...	109	...	...	29	18	44	17	1	5	11	10	17	16	5	14	13	10	8	...
Other forms of Tuberculosis	28	4	6	12	3	2	1	...	1	4	2	4	5	1	4	1	5	1	...
Totals	719	56	227	273	61	66	31	5	59	48	49	87	85	63	98	80	95	55	91

Table showing the number of notifications of Infectious Diseases during each of the quarters of the year.

Notifiable Disease.	Number of Notifications sent in during				Totals.
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	
Scarlet Fever	4	13	8	13	38
Diphtheria (including Membranous Croup)	16	15	18	13	62
Erysipelas	13	14	5	6	38
Enteric (or Typhoid) Fever	...	1	...	...	1
Typhus Fever ... ..	...	1	...	...	1
Ophthalmia Nenoatorum	3	5	8	5	21
Cerebro-Spinal Fever ...	1	...	...	...	1
Measles	386	25	4	5	420
Totals	423	74	43	42	582

Table showing the several Wards of the City where Deaths from Zymotic Diseases occurred.

DISEASE.	Stanwix & Etterby	Rickergate	Aglionby	Greystone	St. Nicholas	Currock	Denton Holme	St. Cuthbert's	Caldewgate	Newtown & Belle Vue	Totals
Measles ... ..	...	...	...	...	1	...	2	1	2	...	6
Scarlet Fever ... ..	...	...	...	...	...	...	...	...	...	...	...
Whooping Cough ...	4	2	...	4	6	4	5	3	5	2	35
Diphtheria ... ..	...	...	...	1	...	...	1	1	...	3	6
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...	...	...
Enteric (or Typhoid) Fever	...	...	...	...	...	...	...	...	...	1	1
Diarrhœa	1	3	3	3	3	1	4	1	2	3	24
Erysipelas ... ..	...	...	...	...	...	...	...	...	...	1	1
Cerebro-Spinal Fever ...	...	...	...	1	...	...	...	...	...	...	1
Totals.	5	5	3	9	10	5	12	6	9	10	74

The following table shows the number of Cases of Notifiable Diseases recorded in the City, and the number of deaths from each during the past 6 years.

	1913		1914		1915		1916		1917		1918	
	No cases Notified	Deaths	No cases Notified	Deaths	No cases Notified	Deaths	No Cases Notified	Deaths	No cases Notified	Deaths	No cases Notified	Deaths
Smallpox .....	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever	159	...	250	9	562	10	225	6	30	3	38	...
Diphtheria	52	9	44	3	68	12	153	28	98	13	62	6
Enteric Fever	5	...	2	...	1	...	3	...	1	1	1	...
Typhus Fever .....	...	...	...	...	...	...	1	1	...	...	1	...
Continued Fever .....	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever	1	1	1	...	1	...	4	2	1	1	...	...
Measles	*	3	*	2	*	35	60	1	1796	12	420	6
German Measles	*	...	*	...	*	...	22	...	404	...	...	...
Cerebro-Spinal Fever...	*	...	*	...	*	...	...	...	3	2	1	1
Poliomyelitis	3	1	2	...	3	1	3	...	1	...	...	...
Ophthalmia Neonatorum	*	...	20	...	10	...	8	...	17	...	21	...
Erysipelas	51	...	57	...	72	...	45	1	64	1	38	1
Pulmonary Tuberculosis	351	71	231	70	194	80	167	66	103	72	109	48
Other forms of Tuberculosis	96	25	56	32	56	26	49	29	30	24	28	19
Total Notifications	718	...	663	..	967	...	740	....	2548	...	719	..

* Indicates that the disease was not notifiable during the year.

SCARLET FEVER

(Syn. Scarlatina.)

The number of cases of Scarlet Fever notified or brought to my notice by other means during 1918 was 38, being an increase of 8 on the figure for 1917.

Experience has shown that Scarlet Fever epidemics occur at intervals of four or five years, with an intervening period during which only sporadic cases occur. The last epidemic occurred in Carlisle in 1915, when 562 cases were notified and 273 were treated in hospital. In the following year the number of cases notified fell to 225, while in 1917 the number was the lowest recorded, viz., 30. The incidence was also very small during the past year. It is extremely fortunate that the incidence of Scarlet Fever has been so light during the last two years, as during this period we have been visited by two extensive epidemics of other infectious disease, namely, measles in 1917, and during the past year an epidemic of virulent influenza, which required so much attention at a time when the staff of the department was greatly diminished.

Of the 38 cases thus recorded, 30, or 78.9 per cent., were isolated in hospital.

No death of a resident was registered from this disease during the year.

Out of the 38 cases notified as Scarlet Fever one patient was found not to be suffering from this disease, but was suffering from German Measles.

RETURN CASES.

No return cases of Scarlet Fever occurred during the year.

Table showing number of notifications, number of cases isolated, number and percentage of deaths during ten years 1909-1918.

Year.	No. of cases notified.	No. of cases isolated in Hospital.	Average period in Hospital (days).	No. of return cases.	No. of deaths.	Deaths per 100 cases.
1909	119	87	..	3	6	5.0
1910	248	171	42.0	7	2	0.7
1911	139	104	42.8	3	2	1.4
1912	110	101	42.3	2	2	1.8
1913	164	131	44.2	4	0	0.0
1914	251	196	51.1	10	9	3.6
1915	562	273	37.8	27	10	1.7
1916	225	117	45.6	6	6	2.6
1917	30	19	43.0	0	0	0.0
1918	33	30	39.8	0	0	0.0

DIPHTHERIA.

(Including Membranous Croup.)

The number of cases of Diphtheria notified during 1918 was 62, as against 98 during 1917 and 153 during 1916.

The Table on page 23 shows the incidence of the disease on the various wards of the City. Of the 62 cases notified, 16, or one quarter, occurred in Currock Ward, and 11 in Greystone Ward. 10 of the cases in Currock Ward occurred between the middle of September and the middle of October, chiefly in houses in the neighbourhood of Harrison Street, where the first case of the series occurred, and were all probably attributable to the same source of infection.

Of the 62 cases notified, 4 were found to be suffering not from Diphtheria, but from Tonsillitis.

The seasonal of the disease was as follows :—

January	...	...	5	July	...	...	5
February	...	...	6	August	...	...	3
March	...	...	5	September	...	...	10
April	...	...	3	October	...	...	6
May	...	...	9	November	...	...	5
June	...	...	3	December	...	...	2
Total							62

During 1918, 5 deaths were registered as due to Diphtheria, the death-rate being equal to .09 per 1,000 of the estimated population, or 11.3 per cent. of the cases notified.

Of the 62 cases notified, 51, or 82.3 per cent., were removed to the Isolation Hospital.

No return case occurred during the year.

Table shewing number of notifications, number of cases isolated, number and percentage of deaths, 1902-1918.

Year.	No. of cases notified.	No. of cases isolated in Hospital.	No. of deaths.	Deaths per 100 cases.
1902	156	81	41	26.2
1903	68	46	20	29.4
1904	39	25	14	35.8
1905	25	14	6	24.0
1906	20	8	5	25.0
1907	12	6	3	25.0
1908	31	20	4	12.7
1909	36	18	4	11.1
1910	37	27	2	5.4
1911	44	33	4	9.1
1912	47	33	6	12.8
1913	57	42	9	15.8
1914	52	31	3	5.8
1915	73	51	12	16.4
1916	153	118	28	18.3
1917	98	81	12	12.2
1918	62	51	6	9.6

ANTI-DIPHThERIC SERUM.

(Antitoxin.)

12 applications by medical practitioners were made during the year for the free supply of anti-diphtheric serum, 46,000 units being supplied.

SMALLPOX.

The district was free from Smallpox during the year.

PUERPERAL FEVER.

During the year no case of Puerperal Fever was notified.

MEASLES AND GERMAN MEASLES.

During the year 420 cases of Measles were notified. No notifications were received in respect of German Measles.

The epidemic of Measles which invaded the City during 1917 continued during the early months of 1918 but gradually subsided; during the latter half of the year the City was practically free from the disease.

6 deaths were registered as due to Measles, the deaths occurring during the early part of the year:—

January	...	...	...	...	2
February	...	...	...	...	2
April	...	...	...	...	2
					<hr/>
					6
					<hr/>

4 cases of Measles with complications were removed to the Isolation Hospital, 2 of the patients being soldiers.

The total number of visits made by the Health Visitors to the homes of children suffering from Measles during the year was 667:—

Primary visits	...	...	...	403
Re-visits	...	...	...	264
				<hr/>
Total	...			667
				<hr/>

Particulars of notification of cases of Measles and German Measles

	Measles		German Measles		Measles and German Measles	
	Civil	Military	Civil	Military	Civil	Military
Notified by Medical Practitioners ..	219	3	..	...	219	3
Notified by Parents, Guardians, and other persons ...	193	..	...	...	193	...
Unnotified	5	...	...	...	5	...
Total ...	417	3	...	...	417	3

Table showing the annual mortality from Measles for 30 years, 1889 to 1918 inclusive:

Year.	No. of Deaths.	Year.	No. of Deaths.
1889 ...	44	1904 ...	7
1890 ...	1	1905 ...	17
1891 ...	22	1906 ...	1
1892 ...	3	1907 ...	54
1893 ...	77	1908 ...	0
1894 ...	20	1909 ...	11
1895 ...	5	1910 ...	3
1896 ...	1	1911 ...	13
1897 ...	1	1912 ...	39
1898 ...	59	1913 ...	3
1899 ...	5	1914 ...	2
1900 ...	13	1915 ...	35
1901 ...	5	1916 ...	1
1902 ...	10	1917 ...	12
1903 ...	3	1918 ...	6

Table showing number of cases of Measles and German Measles notified from all sources, number isolated, Deaths, &c., 1916-18.

Year.	No. of Cases notified.		No. of Cases isolated in Hospital.		No. of Deaths.		Deaths per 100 Cases.	
	Measles	German Measles	Measles	German Measles	Measles	German Measles	Measles	German Measles
1916	60	22	...	1	1	...	1.6	...
1917	1796	404	3	4	12	...	0.6	...
1918	420	...	4	...	6	...	1.4	...

WHOOPIING COUGH.

During 1918 Whooping Cough was very prevalent in the City, and although it has not yet been added to the list of diseases which are compulsorily notifiable, a limited notification of the disease by Head Teachers and Attendance Officers has been in operation in the City for some years. By this means many cases were brought to my notice. Many were also reported by the Health Visitors in the course of their visits in connection with Infant Welfare work.

Unfortunately Whooping Cough is regarded by parents as a trivial disease and one which children are certain to contract, consequently in most cases little or no effort is made to isolate the patient and prevent the spread of infection.

Among infants and young children the mortality from Whooping Cough is very high, and of the 34 deaths which were registered as due to this disease, 20 occurred among children under one year, equivalent to an infant mortality rate of 19.4 per 1,000 births, while all but 2 of the deaths occurred in children under 5 years.

The mortality from Whooping Cough decreases rapidly as age increases, and it is therefore of vital

importance to protect young children as long as possible from infection. If parents would appreciate the danger of this disease to infants and young children and take adequate precautions to prevent the spread of infection, a considerable saving of young lives would be effected.

Table showing age distribution of deaths from Whooping Cough.

Ages	0-1	1-2	2-5	5-15	15-25	Total
Deaths... ..	20	8	4	1	1	34

In addition to this high mortality among young children Whooping Cough is responsible for much ill-health among the survivors. In investigating cases of Tuberculosis in children it is found in many instances that the ill-health dates from an attack of Whooping Cough.

All cases of Whooping Cough which were brought to my notice were visited by the Health Visitors, who advised the parents and insisted on isolation of the patient, specially where there were infants or young children in the house. 368 visits were paid by the Health Visitors in connection with this disease and Chicken-pox.

SCHOOL CLOSURE.

No school was closed during the year.

ENTERIC FEVER.

(Syn. Typhoid Fever.)

1 person was notified as suffering from Enteric Fever during the year. The patient, a little girl, aged 7 years, who died 4 days later, was ascertained not to be suffering

from Enteric Fever, but from Peritonitis, complicated by Broncho-Pneumonia and Pleurisy.

One patient suffering from Enteric Fever, who was admitted to the Isolation Hospital in 1917, died during 1918. He was transferred from Fusehill War Hospital and was not a resident in the City.

Table showing the annual number of cases notified as Enteric Fever from 1890 to 1918, inclusive.

Annual No. of Cases			Annual No. of Cases		
1890	...	21	1905	...	7
1891	...	18	1906	...	5
1892	...	32	1907	...	1
1893	...	20	1908	...	2
1894	...	15	1909	...	1
1895	...	20	1910	...	6
1896	...	13	1911	...	3
1897	...	19	1912	...	3
1898	...	22	1913	...	5
1899	...	19	1914	...	2
1900	...	7	1915	...	2
1901	...	19	1916	...	3
1902	...	16	1917	...	0
1903	...	6	1918	...	1
1904	...	15			

TYPHUS FEVER.

A patient at Fusehill War Hospital was notified as suffering from Typhus Fever. He was removed to Crozier Lodge Isolation Hospital, but was later found to be suffering from Tubercular Meningitis.

POLIOMYELITIS.

No case of Poliomyelitis was notified during the year.

CEREBRO-SPINAL FEVER.

One case of Cerebro-Spinal Fever, which terminated fatally, was notified from Fusehill War Hospital.

The following table gives particulars of the case notified :--

No.	Date of Notification.	Name.	Age.	Sex.	Address.	Where Isolated.	Bacteriological Examination.	Result of Case.
1	March 26	F.R.	22	M.	Fusehill War Hospital	Fusehill War Hospital	Diplococcus intracellularis found	Died, 13th April

OPHTHALMIA NEONATORUM.

During the year 21 cases of purulent discharge from the eyes of newly-born infants were notified, 1 of which however was not considered to be Ophthalmia Neonatorum. In 18 cases both eyes were infected, while in the remaining 2 cases only one eye was involved.

Each case was investigated, examined, and advice given to the parent or other person in charge of the infant immediately on receipt of notification, and kept under observation until recovery took place. All the cases recovered without any permanent damage to the eye.

One case was not notified, but was discovered later by a Health Visitor in the course of her duties. In this case the left eye was permanently damaged, the eye being practically blind.

DIARRHŒA.

During the year 24 deaths from this disease were registered, as against 34 during 1917 and 27 during 1916. In one instance the death related to a non-resident staying in the City.

The mortality rate from the disease was .45 per 1,000 living at all ages.

Table showing the age distribution of deaths
from Diarrhœa.

Ages ...	0 to 1	1 to 2	2 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and over
Deaths	16	4	...	...	...	...	1	1	1	1	...	...

It will be observed that 20 of the 24 deaths were young children under 2 years of age, 16 of whom were in the first year of life:—

Under 4 weeks	...	...	...	...	2
4 weeks to 3 months	...	...	...	...	5
3 months to 6 months	...	...	...	...	4
6 months to 9 months	...	...	...	...	4
9 months to 12 months	...	...	...	...	1
					—
					16
					—

Only 1 of the 16 infants was breast fed. 10 were fed entirely by means of milk from a bottle, while 5 were fed partly from the breast and partly from a bottle.

Table showing seasonal incidence of
Diarrhœa.

Year.	January	February	March	April	May	June	July	August	September	October	November	December	Total for year
Average 1878-1917	1	.78	.78	.72	.45	.98	1.3	3.12	4.62	1.88	.82	.75	14.7
1918	3	2	3	2	1	1	...	5	2	1	1	3	24

INFLUENZA.

During the past year an extensive epidemic of virulent Influenza occurred over the entire world. Similar world-wide epidemics occurred in 1803, 1833, 1837, 1847, and 1890. The nature of the disease has been disputed by many, but no definite evidence proving the disease to be other than Influenza has been put forward. The recent outbreak was essentially identical, both in itself and in its complications, with that of 1890.

During the year 121 deaths were registered as due to Influenza, 14 of which occurred among non-residents, and from the tabulated weekly returns of deaths from the disease which follows, it will be observed that the epidemic occurred in two waves, the first commencing about the middle of June and continuing until the beginning of August; the second commencing in the middle of October and continuing until the end of the year.

Deaths from Influenza during 1918.

<i>Week ending.</i>	<i>No. of deaths.</i>	<i>Week ending.</i>	<i>No. of deaths.</i>	<i>Week ending.</i>	<i>No. of deaths.</i>	<i>Week ending</i>	<i>No deaths</i>
Jan. 5	—	Apr. 6	—	July 6	6	Oct. 5	—
,, 12	—	,, 13	—	,, 13	13	,, 12	—
,, 19	—	,, 20	—	,, 20	2	,, 19	1
,, 26	1	,, 27	—	,, 27	1	,, 26	3
Feb. 2	—	May 4	2	Aug. 3	1	Nov. 2	2
,, 9	—	,, 11	—	,, 10	—	,, 9	4
,, 16	—	,, 18	—	,, 17	—	,, 16	4
,, 23	—	,, 25	1	,, 24	—	,, 23	12
Mar. 2	—	June 1	—	,, 31	—	,, 30	18
,, 9	—	,, 8	—	Sept. 7	1	Dec. 7	29
,, 16	—	,, 15	—	,, 14	—	,, 14	9
,, 23	1	,, 22	—	,, 21	—	,, 21	6
,, 30	—	,, 29	1	,, 28	—	,, 28	1
						Period to 31st	2
						Total	121

Influenza was responsible for as much as 13 per cent. of the total deaths during the year, equal to a death-rate of 2.25 per thousand of the estimated population.

The disease attacked chiefly young adults and was considerably more fatal at this age than among persons at other ages, half the deaths occurring in people between the ages of 15 and 35. The age and sex distribution of the total cases is given in the table below :—

Table showing age and sex distribution of deaths from Influenza.

Ages.		0—1	1—2	2—5	5—15	15—25	25—35	35—45	45—55	55—65	65—75	75—85	85 and upwards
No. of Deaths.	M.	1	2	3	2	8	18	6	7	3	2	1	1
	F.	1	3	3	5	15	19	7	4	3	4	2	1

The disease affected both sexes almost equally, 54 deaths occurring among males and 67 among females, the incidence being a little higher among females.

Although the essential characteristics of the disease were similar during both waves, the number of cases and the number of deaths showed a marked variation.

During the first wave the disease was more prevalent but of a milder type, fewer cases were complicated by Pneumonia, with the result that the number of deaths was less, 24 taking place during this period. The disease spread rapidly, but most of the persons affected were only ill for a few days and were soon able to resume their occupation. The disease however was responsible for considerable dislocation of industry in the City, owing to the large number of persons off work. School children did not appear to suffer much from Influenza, and the

school attendance during this period was very little below normal.

The second wave commenced about the middle of October and gradually increased in intensity until it reached its maximum at the end of November. It then subsided and had almost exhausted itself by the end of the year. During this period the disease was more fatal, 91 deaths occurring during the last eleven weeks of the year, 29 of which were registered during the week ending 7th December. The increased mortality was not so much due to an alteration in the type of the disease as to the increased number of cases complicated by a fatal type of Pneumonia; the increase of this complication may, however, have been largely due to the inclement weather at the time. No statistics are available as to the relative number of persons affected during the two waves, but I am of opinion that the number was not nearly so great during the second wave, although the mortality was four times as great and the disease again appeared chiefly to affect young adults. There was no evidence of excessive incidence among school children, although the average attendance fell to a low level. This was, I think, due partly to non-Influenzal catarrh, which is common at this time of the year, and partly to parents withdrawing their children from school owing to fear of infection. Much sentiment appears to have been expressed about the schools remaining open during the epidemic, but I am convinced that closure of schools, especially in a large urban area, is useless in checking the spread of infectious disease. Children excluded from school play together in the streets, open places, and the houses of one another, or meet in places of entertainment and worship, and healthy persons come into close contact with those suffering from disease in an early and acutely infectious stage, with the result that the disease may be in this manner spread more easily than in

schools, where, as a rule, certain hygienic requirements are insisted upon.

A small supply of influenza vaccine was received from the Principal Medical Officer of the Local Government Board, who, in a circular letter on the use of the vaccine, suggested that it should be used chiefly for persons specially exposed to infection, such as nurses and other officers of hospitals and other institutions.

Information as to the results were requested under the following headings:—

- (1) The re-action following the inoculations.
- (2) The occurrence of any cases of severe illness within 48 hours of inoculation.
- (3) The incidence of the disease among inoculated and uninoculated.
- (4) The incidence of complications among inoculated and uninoculated.

It was decided, in consultation with Dr. Donald, that the vaccine should be used for members of the Infirmary staff, and the observations of Dr. Walker and Dr. Irwin, who administered the vaccine, are as follows:—

“ I left the Infirmary shortly after the second dose of vaccine had been given, and would suggest that you could possibly get fuller details from the present House Surgeon, Dr. Irwin, who was then House Physician.

“ Acting under Dr. Donald's instructions no actual systematic observations on those inoculated were made, but I had temperatures taken 24 hours after the first inoculation and questioned each one at the second inoculation. 25 inoculations were made.

“ (1) 2 had slight temperature, malaise, catarrh, ‘ pains ’ for two days after first inoculations, but on questioning, this condition appeared to have been

developing before inoculation, that no catarrhal condition was obvious then. 5 had marked local erythema at site of injection.

“(2) No cases of severe illness within 48 hours.

“(3) and (4) Unfortunately I am not in a position to give information on this point, but I have no doubt Dr. Irwin will gladly supply it.

“Personally, I was one of those inoculated and yet developed a typical Influenzal attack when in Edinburgh last week. It would be difficult to say whether the slightness of the attack was due to prompt measures taken or to the prophylaxis of the vaccine.

“At any rate in no case under my observation did its use seem harmful.

“I regret that I have no further details.

M. L. WALKER,
Former House Surgeon,
Cumberland Infirmary, Carlisle.”

“(3) *Inoculated persons*.—1 maid developed an attack of Influenza two hours after being inoculated; this attack lasted 3 days.

Uninoculated persons.—7 maids and 2 nurses had Influenza; in no case was the attack severe, and it only lasted 3 days.

“(4) There were no complications following the Influenza, neither in the case of the inoculated nor uninoculated. Dr. Walker counts among the inoculated persons.

“Of course prompt treatment was carried out in each case, which may account for the shortness of the attack and absence of complications.

M. E. IRWIN.”

The number of nurses and others inoculated was small, perhaps too small for a safe positive conclusion as to the merits of the vaccine to be drawn, but I am led to the conclusion that the nett result of the use of the vaccine was beneficial, especially having regard to the fact that the observations were made when the incidence and severity of the disease were at their highest and at a period when the mortality from the disease was greatest.

In six instances it was considered advisable to remove the cases of Influenza to the Isolation Hospital.

The Public Health (Influenza) Regulations, 1918, which were issued by the Local Government Board in November, provided that (a) public entertainments should not be carried on for more than three hours consecutively; (b) there shall be an interval of not less than 30 minutes between any two entertainments; and (c) during the interval the place shall be effectually and thoroughly ventilated.

The Public Health (Influenza) Regulations (No. 2), 1918, also provided that where any school had been closed children should not be admitted to a cinematograph exhibition; and (b) that the duration of a cinematograph exhibition should not exceed 4 hours, instead of 3 as laid down in the original regulations.

Public Health (Acute Encephalitis Lethargica and Acute Polio-Encephalitis) Regulations, 1918.

These regulations were made by the Local Government Board in December last, to come into operation on 1st January, 1919, and remain in force for a period of one year. The object of the regulations is to secure notification of cases of an obscure infectious disease which occurred in epidemic form in the spring of 1918, resembling in many respects a rare disease called Botulism, which is due to the consumption of infected food.

ISOLATION HOSPITAL.

Table showing number of cases removed to Hospital.

Disease.			No. of cases admitted	Recovered.	Died.
Scarlet Fever	...	...	30	30	...
Diphtheria	...	...	51	48	3
Typhus Fever	...	...	1	...	1
Erysipelas	...	...	4	4	...
Measles	...	...	5	5	..
Influenza	...	...	6	6	...
Totals	...	...	97	93	4

Table showing case mortality of Scarlet Fever and Diphtheria isolated in Hospital compared with Home Cases.

Year.	SCARLET FEVER.				DIPHTHERIA.			
	Hospital Cases.		Home Cases.		Hospital Cases.		Home Cases.	
	No. of Cases Isolated.	Death-rate per 100	No. of Cases Isolated.	Death-rate per 100	No. of Cases Isolated.	Death-rate per 100	No. of Cases Isolated.	Death-rate per 100
1912	101	1.8	9	0.0	33	6.0	14	28.5
1913	131	0.0	33	0.0	42	11.9	15	26.6
1914	196	4.6	55	0.0	31	9.6	21	0.0
1915	273	2.2	297	1.3	51	15.6	22	18.1
1916	117	4.2	108	0.9	118	22.0	35	5.7
1917	19	0.0	11	0.0	81	11.1	17	17.6
1918	30	0.0	8	0.0	51	6.0	11	18.2

NOTIFICATION FEES.

The total amount paid in fees for notification of all notifiable diseases during 1918 was £52 4s. 9d.

TUBERCULOSIS.

(Administrative Control.)

The work in connection with the administration and treatment of Tuberculosis was carried out during the year by myself, in the absence of Dr. Spence. Having regard to the importance of this work I have endeavoured to keep it up to the highest possible standard and upon the same lines as heretofore. In addition to Tuberculosis cases associated with home conditions I have during the year dealt with a number of cases of the disease at the instance of the Pensions Ministry and the National Health Insurance Commissioners of men who have been invalided out of His Majesty's Forces.

I desire to indicate the need that exists in the City of accommodation for advanced cases of Tuberculosis of the lungs. In all but the earliest stages, Tuberculosis of the lungs is a communicable disease, and in small houses, where facilities for isolation do not exist, the other occupants are for a considerable period exposed to infection and ultimately become victims of the disease.

It is now generally agreed that the most satisfactory method of dealing with advanced cases of Pulmonary Tuberculosis is that provided by the establishment of small homes in the district in which the affected persons reside. The Tuberculosis Society, supported by the National

Association for the Prevention of Consumption, have expressed the opinion that one or more Tuberculosis Homes should be created in relation to every Tuberculosis Dispensary, and should be under the control of the Tuberculosis Officer.

A gross total of 149 notifications of Tuberculosis were received during the year, of which 12 were duplicates. Of the 137 primary notifications, 115 were received from medical practitioners, while 22 were recorded by the School Medical Officer; 109 notifications related to Pulmonary Tuberculosis, while 28 were in respect of other forms of the disease.

54 notifications on Form C were received, all of which related to the admission of tuberculous patients into a sanatorium.

Summary of Notifications of Tuberculosis from 30th Dec., 1917, to 28th Dec., 1918.

NOTIFICATIONS ON FORM A.

Ages.	Number of Primary Notifications.											Total Prim-ary Noti-fications.	Total Noti-fications on Form A.
	0-1	1-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65 & up-wards.		
Pulmonary Males	1	3	6	5	19	8	8	1	...	51	56
" Females	2	2	2	5	13	4	6	2	1	37	42
Non-pulmonary Males	...	3	3	2	2	..	..	...	...	...	...	15	16
" Females	...	1	3	2	1	...	1	1	..	1	...	12	13
Totals	...	4	6	9	11	10	33	13	14	4	1	115	127

NOTIFICATIONS ON FORM B.

Ages.	Number of Primary Notifications.				Total Noti-fications on Form B.
	Under 5.	5-10	10-15	Total Prim-ary Noti-fications.	
Pulmonary Males	...	10	2	12	12
" Females	...	7	2	9	9
Non-pulmonary Males	...	1	...	1	1
" Females
Totals	...	18	4	22	22

NOTIFICATIONS ON FORM C.

	Sanatoria.	Poor Law Institutions.
Pulmonary Males	33	Nil.
" Females	21	
Non-pulmonary Males	...	
" Females	...	
Totals	54	

The total number of deaths of residents registered from all forms of Tuberculosis during 1918 was 67, equal to a death-rate of 1.3 per 1,000 of the estimated population. Of this number 48 (61.6 per cent.) were due to Pulmonary Tuberculosis, giving a death-rate of 0.9 per 1,000 of the estimated population at all ages.

During 1917, 96 deaths were registered as due to Tuberculosis, of which 71 were due to affection of the lungs, giving a death-rate of 1.3 per 1,000 from Pulmonary Tuberculosis.

The age and sex distribution of the deaths from Tuberculosis is shown in the following table:—

Ages.	0-1	1-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65 and over.	Totals.
Pulmonary—												
Male ...	...	...	...	1	3	2	11	6	3	1	...	27
Female ...	...	...	...	...	1	...	7	4	7	1	1	21
Non-Pulmonary—												
Male ..	3	...	2	1	1	...	1	1	...	...	...	9
Female ...	...	...	2	2	2	..	2	2	...	..	...	10
Totals ...	3	..	4	4	7	2	21	13	10	2	1	67

The distribution of the deaths during 1918 was as follows:—

	Pul-monary.	Non-Pul-monary.	Total.
Stanwix and Etterby Ward ...	7	...	7
Rickergate Ward ...	5	...	5
Aglionby Ward ...	2	...	2
Greystone Ward ...	4	4	8
St. Nicholas Ward ...	6	3	9
Currock Ward ...	5	1	6
Denton Holme Ward ...	4	1	5
St. Cuthbert's Ward ...	3	1	4
Caldewgate Ward ...	6	7	13
Newtown and Belle Vue Ward ...	6	2	8
	48	19	67

On December 31st, 1917, 137 patients were in attendance at the Tuberculosis Dispensary. During the past year 96 new cases and 9 contacts have come under the observation of the Tuberculosis Officer, making a total of 242 persons who attended during the year.

501 visits have been paid by patients to the Dispensary for examination and supervision, while 21 visits were made to the homes of patients unable to attend the Dispensary. 1,762 visits have been made to the homes by the Nurses for the purpose of advising upon and supervising the home life of the patients. 10 spit cups and pocket flasks have been given to patients, and in 6 instances cod liver oil and malt extract was provided free of charge.

The sputum of 23 patients has been examined for the purpose of assisting in diagnosis or ascertaining whether or not the patients were liable to spread infection. In 9 cases tubercle bacilli were present.

14 patients were receiving sanatorium treatment on January 1st, while 46 were admitted during the year, making a total of 60 who received sanatorium treatment. 48 patients were discharged, leaving 12 in the sanatorium on December 31st last. The average duration of residence of the 48 patients in the sanatorium was 127.1 days.

Condition of Patients on Discharge from Blencathra Sanatorium.

Disease Arrested or much Improved	...	...	16
„ Improved	...	...	23
„ Unchanged	...	...	9
			—
Total	...	...	48
			—

CANCER.

The following figures include all deaths from causes coming within the general term Cancer. The number of deaths registered during 1918 was 66, as against 73 in the year 1917.

Calculating the 66 cases upon the Registrar-General's figure of 53,717, a mortality rate of 1.2 per 1,000 at all ages is obtained.

Table of Deaths from Cancer, 1911 to 1918.

Age.	Numbers.							
	1911	1912	1913	1914	1915	1916	1917	1918
1 to 5 years ...	1	...	1	...	...	...	...	...
5 to 15 years ...	2	...	1	...	...	...	...	1
15 to 25 years ...	2	3	...	...	1	1	1	1
25 to 35 years ...	5	2	1	2	...	2	1	1
35 to 45 years ...	5	6	5	10	3	6	7	5
45 to 55 years .	6	18	11	10	7	17	10	13
55 to 65 years ...	11	18	25	20	21	21	32	21
65 to 75 years ...	7	10	14	16	20	18	14	17
75 and upwards	6	5	5	10	6	9	8	7
Totals ...	45	62	63	68	58	74	73	66

Public Health (Venereal Diseases) Regulations, 1916.

During the past year but little progress has been made towards the completion of the scheme for the treatment of Venereal Diseases. The arrangements for diagnosis described in my last report have been continued, and specimens from suspected cases of Venereal Disease were examined and reported upon by Professor Delepine at the Public Health Laboratory, Manchester, until the end of July. Since August this work has been continued by Professor Dean, of the Department of Pathology, Manchester University.

The fixation of complement test was carried out in connection with 51 cases of suspected Venereal Disease, the result being positive in 32 instances. In addition, 4 specimens of discharge were examined for the presence of the organism causing Gonorrhœa, all of which were positive.

Summary of Examination of Specimens in connection with Venereal Diseases.

			Fixation of Complement.		Examination for presence of Gonococci.	
			No. of Specimens.	No. Positive.	No. of Specimens.	No. Positive.
January	...	...	3	2	1	1
February	...	...	2	1	1	1
March	...	...	4	...	..	...
April	...	..	4	3	...	...
May ...	...	...	5	4	...	...
June	...	...	2	..	2	2
July ...	...	...	5	2	..	...
August	...	..	4	3	...	...
September	...	...	2	2	...	...
October	...	...	10	6	...	...
November	...	...	5	4	...	...
December	..	...	5	5	...	...
Total			51	32	4	4

Salvarsan substitutes were supplied for the treatment of cases of Venereal Disease both at the Cumberland Infirmary and by private practitioners. The following particulars relate to the nature and quantity of substitutes for Salvarsan supplied during the year.

Nature of Substitute.	Quantity.	Number of Doses Supplied.	
		Cumberland Infirmary.	Medical Practitioners.
Galyl	.25 Gram	2	...
	.30 „	1	1
	.35 „	75	4
	.40 „	70	18
Neokharsivan	.75 „	2	...

Summary of cases of Venereal Disease from the City of Carlisle treated at the Cumberland Infirmary:—

Total number of patients	...	...	13
Total number of attendances at Out-patient Clinic	...	...	55
Aggregate number of “ In-patient days ” of treatment during the year	...	...	nil
Number of doses of Salvarsan substitute given in the—			
(1) Out-patient Clinic	...	...	52
(2) In-patient Department	...	...	nil
Number of examinations of pathological material made for the detection of Spirochetes	...	...	16

No definite arrangement has yet been arrived at with the Committee of the Cumberland Infirmary, but persons suffering from Venereal Disease are being treated until an agreement can be reached. Plans for the alteration of a portion of the old wing of the Infirmary for the

reception of cases of Venereal Disease have been submitted to and approved by the Local Government Board.

A whole-time specialist officer for the treatment of Venereal Diseases is to be appointed jointly by the County Council of Cumberland and the Council of the City of Carlisle.

MIDWIVES ACT, 1902.

During the year 1918, 12 certified midwives registered for the practice of midwifery in the City.

The midwives have been visited at their homes, the necessary inspections of their books, bags, appliances, &c., being made.

There was no prosecution during the year in respect of offences under the above Act.

During the year 692 women in labour were attended by certified midwives. In 66 cases complications either during or after labour, were recorded, while medical assistance was obtained in 69 instances.

The following notices upon the prescribed forms were sent by midwives :—

Notice relating to sending for medical help ...	69
Notification of stillbirth	26
Notification of having laid out a dead body ...	1
	—
	96
	—

INQUESTS.

During the year the City Coroner held 42 inquests.

Of this number 30 were held upon the bodies of persons who had been resident within the City, and 12 upon

the bodies of persons who resided in other districts but who died within the City.

9 related to children under 5 years of age, and in 5 instances the infant was under 1 year.

The verdict of the Jury and the ages in the 9 cases respectively were:—

Cause.	Age.
Accidentally poisoned by eating tablets containing Strychnine by misadventure	22 months
Accidentally suffocated by bedclothes whilst lying in a cradle	7 months
Natural causes, viz., Meningitis	5 weeks
Natural causes, viz., Pneumonia and Malnutrition...	3 months
Accidentally suffocated by being overlaid in bed ...	4 months
Died by misadventure whilst undergoing an operation	21 months
Natural causes, viz., Convulsions	5 months
Shock, the result of burns accidentally received ...	4 years
Shock, the result of burns accidentally received ...	20 months

MORTUARY.

During 1918 15 bodies were removed to the Public Mortuary, a post-mortem examination being performed in 15 instances.

UNCERTIFIED DEATHS

During the year 31 deaths were registered of persons belonging to the City in which no certificate was given by a medical man, and in which no inquest was held.

During 1917 24 such deaths were registered.

The 31 deaths in question were registered as being due to the following causes:—

	Sex.	Age.	Cause of Death as Registered.
1	Male	62 years	Heart Failure
2	Male	68 years	Heart Failure
3	Male	*8 months	Bronchitis
4	Male	45 years	Cancer of Throat
5	Male	51 years	Dilatation of Heart
6	Male	*2 months	Convulsions
7	Female	*5 months	Convulsions
8	Male	*2 months	Premature Birth
9	Female	79 years	Heart Failure
10	Male	*1 month	Convulsions
11	Female	74 years	Heart Failure
12	Male	59 years	Heart Disease
13	Female	34 years	Heart Disease
14	Male	67 years	Heart Failure
15	Male	64 years	Heart Failure
16	Female	64 years	Fatty Degeneration of Heart
17	Female	52 years	Heart Failure
18	Female	*9 hours	Premature Birth
19	Male	*9 days	Convulsions
20	Male	55 years	Cerebral Hæmorrhage
21	Female	62 years	Cancer of Stomach
22	Female	35 years	Heart Disease
23	Male	80 years	Heart Failure
24	Male	23 years	Influenza, Pneumonia
25	Male	28 years	Heart Failure
26	Female	30 years	Influenza, Heart Failure
27	Male	57 years	Cerebral Hæmorrhage
28	Female	38 years	Pleurisy and Pneumonia
29	Male	52 years	Hæmorrhage of Lungs
30	Male	36 years	Valvular Heart Disease
31	Male	67 years	Septicæmia, Weak Heart

*It will be observed that seven of the deaths were infants under one year of age.

MILK SUPPLIES

(DAIRIES, COWSHEDS, MILKSHOPS, &c.)

There were 45 cow byres in existence within the City during the year, accommodating 341 milk cows.

The byres, dairy buildings, and other places from which milk is sold within the City were inspected, and the milk cows were kept under supervision and frequent examination by the City Veterinary Surgeon.

During the past year 20 samples of milk were purchased for the purpose of bacteriological observation from the carts of persons selling milk within the City whose dairies are situate in the country area. These samples were submitted to Professor Delepine for the purpose of inoculation experiments upon guinea pigs, in order to ascertain the presence or absence of the tubercle bacillus in the milk sample. 1 sample was broken in transit.

In 6 instances it was not possible to say definitely that no tubercle bacilli were present, as the animals died within 10 days of inoculation. In 3 instances the animals died within 16 days of inoculation, and the absence of tubercle bacilli could not be affirmed, but it is certain that the milk was not highly infected. The remaining 10 samples were free from tubercle bacilli.

Annual Return from the Public Health Laboratory, Manchester, upon Bacteriological Examination made during the year 1918.

A. * MONTH.	VENEREAL DISEASES.				Bovine Tuberculosis Milk.		WATER.
	Fixation of Complement.		Gonococcus.				Bacterio- logical.
	Total.	+	Total.	+	Total.	+	Total.
January ...	3	2	1	1	1
February...	2	1	1	1
March ...	4	4
April ...	4	3	3	...	1
May ...	5	4
June ...	2	...	2	2	1
July ...	5	2	4
August
September
October	4	...	1
November
December	4
	25	12	4	4	19	...	4

Various Investigations.

B.	Date.	Refer. No.	Nature,	No. of Samples. **
March 30th, 1918	L.B. 9748.	Blood, Urine, and Fæces.	3

Total Number of Specimens in List **A.**—52.

Total Number of Specimens in List **B.**—3.

**Grand Total of Specimens received—55.

*The Month is counted to the last Saturday in each Month.

**The numbers given in this column and in the Grand Total refer to the number of initial specimens or samples which formed the basis of "various investigations," in the course of which a greater number of specimens may have had to be examined for the purpose of study.

Report of Veterinary Inspector.

During the year 234 newly-purchased cows were examined in the several byres of the City, amongst which the following conditions were found:—

Septic Poisoning	...	...	...	1
Diseases of the Udder	...	...	...	2
Enlarged glands in the throat	...	...	...	1
				—
				4
				—

These four animals were returned to the sellers.

All the bovine animals exposed for sale at the Sands Cattle Market, and also at the Auction Marts, were examined, a total of 56,097 such examinations being made.

The Auction Marts were visited each Monday in the year, and 2,936 pigs were examined.

11 carcasses of beef, 17 carcasses of mutton, and 1 carcase of pork were examined at the Public Abattoir, all of which, with the exception of three carcasses of beef, I found to be unfit for human food.

4,402 examinations of milk cows were made in the several byres of the City during the year, in order to ascertain the presence or absence of disease likely to affect the milk supply, in the course of which the following conditions were found:—

Septicæmia	...	...	...	...	5
Inflammation of the Udder	...	...	...	...	4
Milk Fever	...	...	...	...	4
Chill	...	...	...	...	2

Gastric Derangement	...	...	...	2
Injury to the Udder	...	...	...	1
Pneumonia	...	...	...	1
				—
				19
				—

The milk of these animals was in each instance destroyed until convalescence was established.

The Corporation stud, consisting of 18 horses (including one used by the Committee of the Burial Board), all of which were under my observation, were free from serious illness.

During the year I received a notice to the effect that certain sheep within the City had been in contact with sheep affected with scab. I visited the farm on which the sheep were kept; 39 examinations of sheep were made, but all were healthy.

A serious outbreak of Swine Fever occurred in April at premises within the City where 436 pigs were kept. On becoming aware of this outbreak I reported the matter to the Chief Constable, who notified the Board of Agriculture. The Board sent down one of its Inspectors, who investigated the outbreak, and practically the whole of the pigs were inoculated with the specific serum, but a very large number of them were killed as a precautionary measure by the owners.

At the request of and in company with the Medical Officer of Health and Sanitary Inspector, post-mortem examinations were made on the carcasses of 79 pigs, 10 of which were considered to be unfit for human food and were destroyed upon the premises.

I received a report that a horse was affected with Parasitic Mange. Notices were served on the owners and the horse isolated and treated until the disease was cured.

I have examined a number of horses which have been in contact with animals affected with Parasitic Mange. All these contacts remained healthy.

On behalf of the Chief Constable I examined a dog which was believed to be suffering from rabies. The animal was examined at the house of the owner, where it had just died. The post-mortem examination showed that death had been caused by strychnine.

In the month of November I was asked to destroy a dog, the owner informing me that the animal, who until about a month previous had always been of a gentle and docile disposition, had without any cause developed a ferocious and excitable condition and had bitten three individuals. When seen by me the animal was very excited, with dilated pupils and twitching of the muscles of the hind limbs. As the symptoms in some respects resembled those associated with rabies I had the dog killed by shooting, and sent the carcase to the Laboratory of the Board of Agriculture and Fisheries for experimental examination, a report upon which showed that the animal was not suffering from rabies.

HOUSING OF THE WORKING CLASSES.

HOUSING OF THE WORKING CLASSES, ACT, 1890.

HOUSING, TOWN-PLANNING, &c., ACT, 1909.

The subjoined table gives particulars relating to certain houses dealt with during 1913, 1914, and 1916, in connection with which certain matters require to be done.

Number and Situation.	Date represented to Committee.	Date of Closing Order served under Housing, Town Planning, &c., Act, 1909.	Date of Demolition Order served under Housing, Town Planning, &c., Act, 1909.	Remarks.
1, 2, 3, 4, 5, 6, 7, and 9 Barley Stack Lane	21st Nov., 1913	9th Dec., 1913	10th June, 1914	Part of the property demolished, the other part still standing
12, 14, 16, 18, 22, 26, & 28 Chapel Street	19th June, 1914	15th July, 1914	14th Sept., 1915	<i>In statu quo</i>
5 houses in Donald's Court, Willow Holme	19th June, 1914	15th July, 1914	14th Sept., 1915	} <i>In statu quo</i> Site forms part of proposed site for new housing scheme
3 houses, Willow Holme	19th June, 1914	15th July, 1914	14th Sept., 1915	
1 & 2 Wood Street, Botcherby	28th Jan., 1916	9th Feb., 1916	...	<i>In statu quo</i> Owner abroad

No inspection in accordance with Section 17 of the Housing, Town-Planning, &c., Act, 1909, was made during the past year, and the work carried out in connection with inspections for the purpose of the discovery of ordinary defects and nuisances is set out in the Sanitary Inspector's Report on page 77.

A scheme for the erection of houses for the working-classes is being proceeded with, and the Council have resolved to erect 600 houses to relieve the congestion which

exists in the City. The first instalment of 70 houses, to be built on land already in the possession of the Council at Denton Holme and Boustead's Grassing, are to be erected as soon as possible, and steps are being taken to acquire land adjoining Dalston Road as a site for the remaining houses.

Table showing number of dwelling houses erected in the City from 1891 to 1918 inclusive.

Year.	No. of Houses erected.	Year.	No. of Houses erected.
1891	149	1905	181
1892	81	1906	183
1893	148	1907	42
1894	184	1908	27
1895	176	1909	7
1896	198	1910	23
1897	217	1911	11
1898	208	1912	11
1899	226	1913	18
1900	262	1914	38
1901	181	1915	9
1902	178	1916	1
1903	170	1917	2
1904	269	1918	0

WATER SUPPLY.

During the past year several samples of water were taken from a domestic tap and submitted to chemical and bacteriological examination, the quality of the water, as in previous years, being uniformly good.

The chemical and bacteriological results of quarterly samples are given in the following pages, together with the results of a special examination as to the action of the water upon lead.

Reports on Samples of Water from Domestic Tap.

BACTERIOLOGICAL EXAMINATION BY PROF. DELÉPINE, MANCHESTER.

QUANTITATIVE ANALYSIS	1918.							
	Number of colonies in one gramme of water.				No. of kinds clearly recognisable.			
A Aerobic micro-organisms growing for 3 days in nutrient gelatine at 20° C to 21° C.	APRIL.	JULY.	OCT.	DEC.	APL.	JULY.	OCT.	DEC.
Non-Liquefying Bacteria ...	9 } 16	19 } 21	104 }	18 }	3 } 6	2 } 3	4 }	3 }
Liquefying Bacteria ...	7 }	2 }	11 }	1 }	3 }	1 }	6 }	1 }
Other Micro-Organisms ...	...	...	1 }	4 }	...	...	1 }	...
B Anærobic Micro- Organisms ...	...	...	...	...	...	...	...	...

QUALITATIVE ANALYSIS.	1918.			
	APRIL.	JULY.	OCT.	DEC.
A Bacteria associated with sewage or fæcal pollution ...	B. Coli communis not found in 100 C. C.	B. Coli communis not found in 100 C. C.	B. Coli communis found in 100 C. C.	B. Coli communis not generally present in 100 C. C.
B Bacteria associated with disease	Not found	Not found	Not found	Not found

In commenting on the results of the bacteriological examination of the sample of water taken in September, Professor Delepine stated, "There appears to be a recurrence of the disturbance which was associated in 1916, with evidence of some pollution."

In his remarks on the example forwarded in December he states, "the occasional presence of the bacillus coli in the series of tests has probably no significance and may be the result of an accident."

CHEMICAL ANALYSIS BY DR. HELLON, WHITEHAVEN.

Results shown in grains per gallon.

1918.

CHEMICAL.	MARCH.	JUNE.	SEPT.	DEC.
Total Solid Matter in solution dried at 212° Fahr. ...	7.280	8.120	8.400	9.800
Chlorine existing as Chlorides	.560	.560	.490	.490
Ammonia	traces	t traces	traces	traces
Albuminoid Ammonia ...	.001	.003	.004	.002
Nitrogen existing as Nitrates...	traces	traces	traces	traces
Oxygen absorbed in 15 minutes at 80° Fahr. ...	.032	.032	.091	.067
Oxygen absorbed in 4 hours at 80° Fahr. ...	.065	.060	.141	.107
Lead and other Poisonous Metals	None	None	None	None
Hardness before boiling ...	5 $\frac{1}{4}$ °	6 $\frac{1}{4}$ °	6 $\frac{1}{4}$ °	6 $\frac{3}{4}$ °
Hardness after boiling ...	$\frac{1}{2}$ °	1°	1°	1 $\frac{3}{4}$ °
Appearance in two-foot tube ...	Clear yellowish- green	Slightly turbid yellowish- green	Clear yellow	Clear yellow
Smell when heated to 100° Fahr.	None	None	None	None
Microscopical Examination ...	Slight deposit of Vegetable debris	Vegetable debris, diatoms	Slight deposit of Vegetable debris	Vegetable debris

A determination of the plumbo-solvent action of the water was made according to the method of the Local Government Board in all samples taken during the year, with the following results :—

Lead dissolved at 10.5° C—

	1st	2nd	3rd	4th	5th	Average.
APRIL	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.03	.04	.03	.03	.03	.03

Lead dissolved at 15.5° C—

	1st	2nd	3rd	4th	5th	Average.
JULY	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.03	.04	.04	.04	.04	.04

Lead dissolved at 9° C—

	1st	2nd	3rd	4th	5th	Average.
OCT.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.03	.05	.04	.04	.04	.04

Lead dissolved at 6° C—

	1st	2nd	3rd	4th	5th	Average.
DEC.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	50 c.c.	
	.04	.03	.04	.03	.03	.03

Total annual distribution of Water from Cumwhinton covered reservoir during the years 1914 to 1918.

Year.	Number of Gallons.	No. of Gallons per head, per day.
1914	690,410,000	33.34
1915	710,974,000	34.03
1916	758,483,000	35.80
1917	801,490,000	33.78
1918	795,220,000	34.58

PUBLIC SLAUGHTER-HOUSES.

The following Table gives particulars of Animals killed, Carcasses examined, and particulars of Carcasses unfit for human food.

Animal	Total number of animals slaughtered and examined	Number of carcasses specially referred for examination	Number in which the whole carcass was unfit for human food	Number in which a portion of a carcass was unfit for human food	Number affected with Tuberculosis.	
					Whole carcass condemned	Part of carcass condemned
Oxen	3,257	90	61	23	34	16
Sheep	53,357	93	73	16	...	...
Calves	235	5	4	1	...	...
Pigs	1,894	4	3	1	...	...
Totals	58,743	192	141	41	34	16

It will be seen that during the year 192 diseased carcasses were specially referred by the Slaughter-house Superintendent for further examination. In 141 instances the whole carcass was unfit for human food, while in 41 instances part of the carcass was unfit for human food.

The table also shows that out of the total of 50 bovine animals examined, in 34 instances the whole carcass was affected with Tuberculosis.

All carcasses and parts of carcasses condemned as unfit for food are destroyed by burning at the Corporation destructor.

PUBLIC BATHS.

NUMBER OF BATHERS DURING 1918.

The total number of bathers was 75,309, as compared with 80,455 in 1917 and 74,081 in 1916.

SWIMMING BATHS.				1st Class.	2nd Class.	Total.
Adults (both sexes)	...	...	...	8,469	14,863	23,332
Elementary School Children (Free)	...	...	...	...	13,528	13,528
Boys' Brigade, &c. (swimmers charged 1d. each)	...	...	...	...	2,192	2,192
Club and Contract Bathers	...	...	...	...	1,816	1,816
PRIVATE BATHS.						
Adults (both sexes)	...	...	...	9,439	23,134	32,573
Vapour	...	...	...	...	...	110
Salt	...	...	...	...	...	1
TURKISH BATHS.						
Males	...	...	...	319	862	1,181
Females	..	...	...	85	491	576
Total				...	...	75,309

RAINFALL.

Observations taken at the Carlisle Cemetery by J. T. Charlton, Esq.

MONTHS.	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918.		Average for 10 years 1908-1917.
											Rainfall. days on which Rain fell.	Number of days on which Rain fell.	
January	in. 2.92	in. 1.69	in. 2.73	in. 1.04	in. 1.45	in. 2.17	in. 2.64	in. 3.17	in. 3.55	in. 1.53	in. 3.13	16	in. 2.29
February	2.68	1.50	4.04	3.62	1.39	1.27	2.59	3.56	3.31	1.13	2.86	18	2.51
March	3.68	3.14	1.25	1.33	3.81	3.37	2.67	1.88	2.14	1.98	0.66	7	2.53
April	2.08	2.52	1.69	2.75	.42	2.77	1.36	1.91	2.44	2.45	0.50	7	2.04
May	3.28	.81	2.07	2.32	1.81	1.78	1.73	2.04	2.98	1.91	1.88	12	2.07
June	1.70	2.95	1.53	3.79	4.13	2.40	1.06	1.15	3.30	2.01	0.87	9	2.40
July	3.50	4.44	3.76	.69	1.83	1.12	3.04	3.80	4.61	1.31	3.73	18	2.81
August	3.18	3.68	4.28	2.20	4.47	2.17	2.73	3.27	2.39	5.64	3.21	20	3.40
September	3.88	2.50	.38	2.16	2.22	2.11	1.28	1.03	2.06	2.61	7.36	24	2.02
October	1.98	5.22	1.68	2.23	2.10	2.51	1.11	1.25	5.10	4.33	4.00	23	2.75
November	2.56	.86	3.61	3.34	2.65	3.40	4.52	.58	4.34	2.83	2.01	17	2.87
December	1.86	3.82	2.62	4.73	3.73	2.46	3.58	4.64	2.75	1.40	3.44	19	3.16
Totals	33.30	33.13	29.64	30.20	30.01	27.53	28.31	28.28	38.97	29.13	33.65	190	30.85
Total number of days on which Rain fell	201	162	197	181	217	194	201	183	228	176	...	...	...

Observations by W. Eggleston, Esq., upon the rainfall at Denton Holme Allotment Gardens, taken weekly with a gauge of 5 inches 2 feet above the ground level, and 57 feet above sea level, show that during the year 30.56 inches of rain fell, giving a weekly average of 0.587 inches. In one week in August no rain fell. The driest month of the year was April, with a rainfall of 0.59 inches, the wettest being September, with a rainfall of 6.07 inches.

Evaporation gauged from an open vessel 2 feet above the ground level during the year was 36.15 inches, the greatest evaporation taking place during the month of June, viz., 7.17 inches; the lowest during the month of December, viz., 0.83 inches.

Chief Inspector's Annual Report.

TO THE CHAIRMAN AND MEMBERS OF THE HEALTH
COMMITTEE.

Gentlemen,

I have the honour of presenting my Annual Report for the year 1918.

BAKEHOUSES.

There are 47 bakehouses upon the register, 4 of which are underground bakehouses.

DAIRIES, COWSHEDS, AND MILKSHOPS.

There are 29 registered cow-keepers and milk-sellers upon the register.

COMMON LODGING-HOUSES.

There are 2 licensed common lodging-houses within the City.

FRIED FISH AND POTATO SHOPS.

There are 22 fried fish and potato shops on the register.

ICE-CREAM SHOPS.

There are 6 ice-cream shops in the City.

OFFENSIVE TRADES.

There are 3 premises where offensive trades are carried on, viz., 1 gut scrapper and 2 tripe dressers.

VANS, USED AS DWELLINGS.

All the vans entering the City to attend fairs &c., have been inspected, in order to ascertain their sanitary condition. On the whole they were found to be satisfactory.

PUBLIC MARKETS.

The Public Markets and premises where food is prepared or exposed for sale have been inspected, and the necessity of the observance of hygienic measures being taken have been constantly pointed out.

DISEASED AND UNSOUND FOOD.

The following table shows the amount of food seized or surrendered as being unfit for human consumption :—

Nature of Food Condemned.					Quantity.
Beef ...	...	...	...	...	27,444 lbs.
Mutton ...	...	...	...	...	3,454 „
Pork ...	...	...	...	...	154 „
Veal ...	...	...	...	...	164 „
Bloaters ..	...	...	...	...	18 boxes
Kippers ...	...	...	...	...	12 „
Corn Beef ...	...	...	...	...	12 lbs.
Condensed Milk	...	...	...	...	19 tins.
Dutch Cheese ...	...	...	...	...	1
Bacon ...	...	...	...	...	44 lbs.

PUBLIC ABATTOIR AND RAILWAY SLAUGHTER-HOUSES.

Frequent visits have been paid to the Public Abattoir and also to the Railway Slaughter-houses.

The following tables give the number of animals killed during the years 1908—1918:—

PUBLIC SLAUGHTER-HOUSES.

Year.	Beasts.	Sheep and Lambs.	Calves.	Pigs.	Total.
1908	3,772	14,911	760	4,064	23,507
1909	3,713	16,799	690	3,744	24,946
1910	3,562	16,491	716	3,444	24,213
1911	3,462	15,711	808	4,018	24,000
1912	3,294	15,499	653 & 1 goat	3,993	23,439
1913	3,441	15,424	654	3,412	22,931
1914	3,668	15,320	616	3,687	23,291
1915	3,510	14,529	440	4,113	22,592
1916	4,167	17,602	306	3,956	26,031
1917	4,166	15,609	248	3,334	23,357
1918	3,257	53,357	235	1,894	58,743

M. R. COY.'S SLAUGHTER-HOUSE.

Year.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.	Total.
1914	...	17,856	...	...	...	17,856
1915	...	66,451	20 (2 goats)	...	...	66,473
1916	...	48,745	...	...	...	48,745
1917	...	60,750	..	...	...	60,750
1918	..	9,487	...	...	...	9,487

N. E. RAILWAY COY.'S SLAUGHTER-HOUSE.

Year.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.	Total.
1914	...	56,779	...	...	...	56,779
1915	...	50,789	...	...	...	50,789
1916	..	50,594	...	...	...	50,594
1917	...	64,254	...	...	...	64,254
1918	...	3,771	...	...	...	3,771

FOOD AND DRUGS.

During the year the articles set out in the following table have been purchased and submitted to the Public Analyst for analysis :—

The following table shows the number of articles purchased, result of analysis and action taken.

Article.	No. of Samples taken.	Genuine.	Adulterated.	Extent and Form of Adulteration	Remarks.
Butter	20	20	...	...	...
Coffee	12	12	...	...	..
Lard	1	1	...	...	...
Cheese	1	1	...	...	...
Milk	49	45	4	Deficient in non-fatty solids to the extent of— (a) 0.40 per cent. (b) 0.20 per cent. (c) 1.28 per cent. (d) 0.75 per cent.	Vendor prosecuted. Case dismissed
Number of Samples taken	83				
Genuine		79			
Adulterated			4		

PUBLIC HEALTH (MILK AND CREAM) REGULATIONS, 1912.

Analytical Report for the year ending 31st December, 1918:—

1. Milk; and cream not sold as preserved cream.

	(a) Number of samples examined for the presence of a preservative.	(b) Number in which a preservative was reported to be present.
Milk	49	None
Cream ... ..	...	...

Nature of preservative in each case in column (b) and action taken under the Regulations in regard to it.

2. Cream sold as preserved cream.

(a) Instances in which samples have been submitted for analysis to ascertain if the statements on the label as to preservatives were correct.

(i) Correct statements made	} Nil
(ii) Statements incorrect	

(b) Determinations made of milk fat in cream sold as preserved cream.

(i) Above 35 per cent.	} Nil
(ii) Below 35 per cent.	

(c) Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article V. (1) and the proviso in Article V. (2) of the Regulations have not been observed Nil

FACTORY AND WORKSHOP ACTS.

There are 165 workshops upon the register, excluding bakehouses.

OUT-WORKERS.

4 lists of out-workers have been received, as required by the home-work provisions of the Factory and Workshop Act, 1901.

In each instance the premises were visited and found to be in a satisfactory condition.

FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK.

1.—Inspection of Factories, Workshops, and Workplaces.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR INSPECTORS OF NUISANCES.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
FACTORIES (Including Factory Laundries)	31	...	...
WORKSHOPS (Including Workshop Laundries)	106	...	...
WORKPLACES (Other than Outworkers' premises included in Part 3 of this Report)	...	..	...
TOTAL	137	...	...

2.—Defects found in Factories, Workshops, and Workplaces.

Particulars.	Number of Defects.			Number of Pro- secutions.
	Found.	Remedied.	Referred to H.M. Inspector.	
<i>Nuisances under the Public Health Acts :—</i>				
Want of cleanliness
Want of ventilation
Overcrowding...
Want of drainage of floors
Other nuisances
<i>Sanitary accommodation :—</i>				
{ Insufficient
{ Unsuitable or defective
{ Not separate for sexes
<i>Offences under the Factory and Workshop Acts :—</i>				
Illegal occupation of under- ground bakehouse (s. 101)...
Breach of special sanitary re- quirements for bakehouses (ss. 97 to 100)
Other offences (Excluding offences relating to outwork, which are in- cluded in Part 3 of this report)
Total	None	None	None	None

3.—Home Work.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.					
	Lists received from Employers.					
	Sending twice in the year.			Sending once in the year.		
	Lists.	Outworkers.		Lists.	Outworkers.	
		Con-tractors.	Work-men.		Con-tractors.	Work-men.
Wearing apparel—						
Making, &c. ...	4	...	4	...	...	...
Cleaning and Washing ...	...	...	...	...	..	..
Total ...	4	...	4	...	...	...

4.—Registered Workshops.

Workshops on the Register (s. 131) at the end of the year				Number.
Important classes of work-shops, such as workshop bakehouses, may be enumerated here.	Workshops			150
	Domestic Workshops ...			15
	Bakehouses			47
	Total number of workshops on Register ...			212

5.—Other Matters.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Acts (s. 133, 1901) ... ..	..
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory & Workshop Acts (s. 5, 1901) :	
Notified by H.M. Inspector ... ..	...
Reports (of action taken) sent to H.M. Inspector ... ..	...
Other ... ..	...
Underground Bakehouses (s. 101) :—	
In use at the end of the year	4

SHOPS.

Frequent inspections have been made under the provisions of the Shops Act, 1912, both during the day and at night time.

HOUSE REFUSE REMOVAL.

14,652 loads of refuse have been collected and removed to the refuse tips and destructor.

GARBAGE.

511 loads of garbage have been removed by the Corporation carters from the Public Slaughter-houses, as compared with 257 in 1917.

INFECTIOUS DISEASES.

141 cases of infectious diseases, excluding Tuberculous diseases and Ophthalmia Neonatorum were notified, as compared with 198 in 1917.

All the cases were investigated and reported upon to the Medical Officer of Health, and 91 cases were removed to the hospital for isolation.

DISINFECTION.

All the houses from which cases of infectious disease were removed to hospital, and rooms in which cases were isolated at home, were either sprayed with formaldehyde or cleansed under the supervision of your inspectors.

The disinfection of bedding, clothing, &c., used, or which had been in contact with an infected person, is set out in the following table:—

Mattresses	...	...	...	...	...	150
Beds	...	...	...	...	...	146
Bolsters and Pillows	...	...	...	...	...	425
Blankets	...	...	...	...	...	965
Quilts	...	...	...	...	...	166
Sheets	...	...	...	...	...	163
Carpets and Rugs	...	...	...	...	...	31
Wearing Apparel	...	...	...	...	...	536
Miscellaneous Articles	...	...	...	...	...	104
Kits	...	...	...	...	...	259
						—
Total					...	2,945
						—

HORSES.

The number of horses under my charge at the Dépôt, Boustead's Grassing, is 17. 11 of these are engaged in house refuse removal, 5 are used for street cleansing purposes, and 1 is kept as a relief horse.

Summary of Sanitary Work performed in connection with Inspection of District.

Inspections.	Number of visits paid.
HOUSES—	
Houses inspected in accordance with the regulation of the H. & T. P. Act, 1909 ...	...
„ „ on complaint ...	6
Visits <i>re</i> Infectious Diseases ...	203
Common Lodging-houses inspected ...	2
Common Yards, Courts, & Alleys inspected ...	4077
TRADE PREMISES—	
Bakehouses ...	4
Laundries ...	...
Stables ...	72
Cowsheds } ...	11
Milkshops } ...	
Ice-Cream Shops ...	2
Fried Fish Shops ...	2
Food Manufacturers ...	6
Slaughter-houses ...	112
Markets ...	117
Other Factories ...	25
„ Workshops and Workplaces ...	106
Chimneys observed (smoke nuisances) ...	...
Visits after serving notices to supervise works in progress ...	399
Refuse Tips ...	12
Shops Act Inspections ...	104
Inspections of Munition Workers' Lodgings ...	Numerous
Visits in connection with various Food Orders	Numerous
<hr/>	
Notices served to abate Nuisances ..	255
„ complied with ...	244
„ not complied with ..	11

Remedial Works.

Houses disinfected	-	-	-	-	-	148
Articles disinfected	-	-	-	-	-	2945
Over-crowding abated		-	-	-	-	10
Walls, damp and defective, remedied			-	-	-	1
Roofs, guttering, spouting repaired			-	-	-	15
Ventilation improved	-	-	-	-	-	...
Water-closets repaired	-	-	-	-	-	19
Flushing Apparatus		-	-	-	-	20
Drains reconstructed	-	-	-	-	-	28
„ tested	-	-	-	-	-	...
Waterways cleansed	-	-	-	-	-	2
Accumulations of manure, removed			-	-		16
Abatement of nuisances caused by keeping of birds & animals						7

